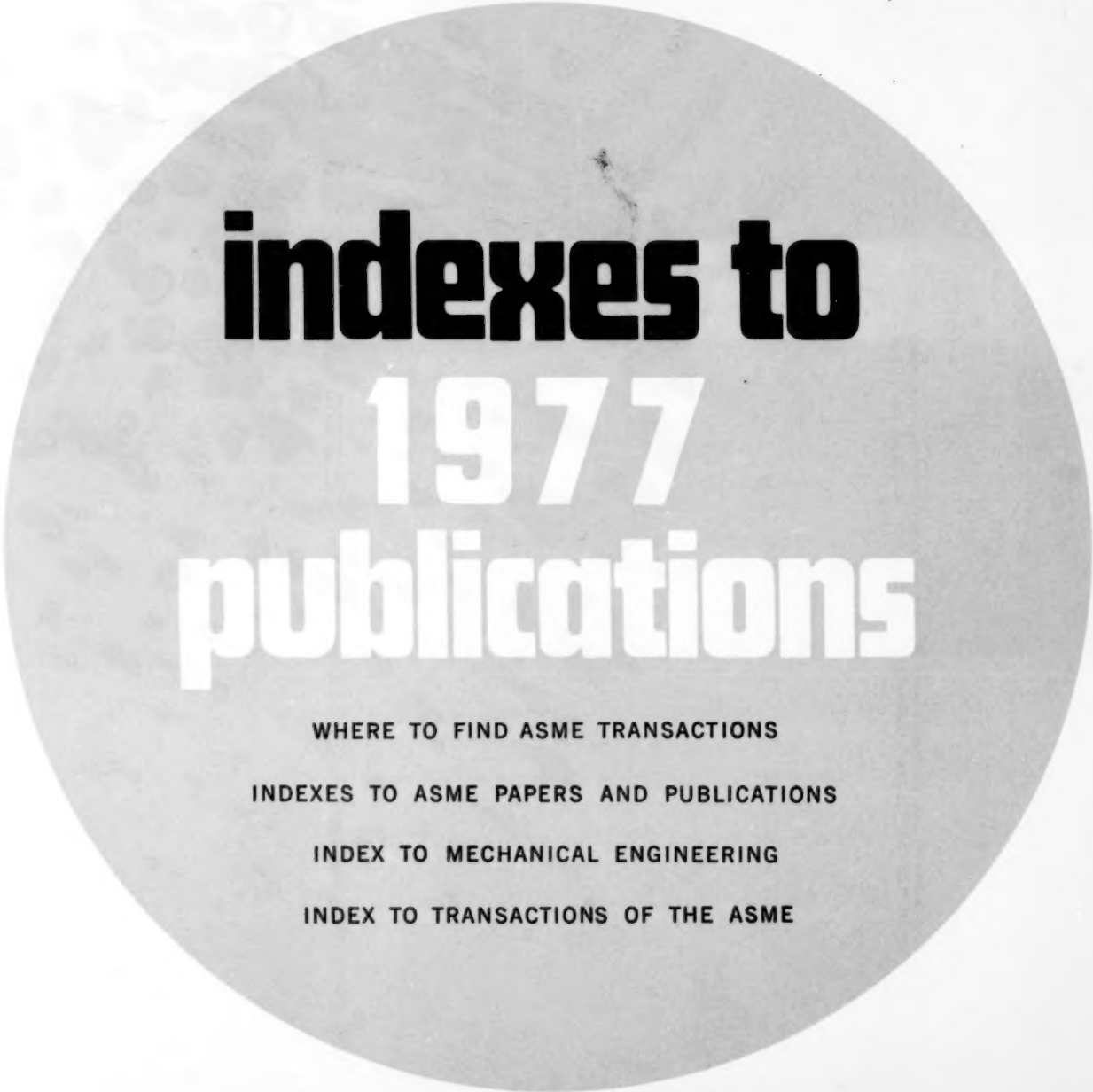


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Series C, *Journal of Heat Transfer*

Series E, *Journal of Applied Mechanics*

Series F, *Journal of Lubrication Technology*

Series G, *Journal of Dynamic Systems, Measurement and Control*

Series H, *Journal of Engineering Materials and Technology*

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Series J, *Journal of Pressure Vessel Technology*

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Present Status and Research Needs in Energy Recovery from Wastes - Proceedings of the 1976 Conference

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HOW TO FIND PAPERS PRESENTED AT 1977 ASME MEETINGS

The technical programs of the meetings of the Society and of its Professional Divisions have been published in MECHANICAL ENGINEERING and may be located by consulting the index on page SR-35. Many of these papers will be published in MECHANICAL ENGINEERING or the *Transactions* and may be located by reference to the indexes of these publications. A free, up-to-date edition of the ASME Technical Papers Catalog is available on request. Xerox copies of out-of-print technical papers may be purchased from the Engineering Societies Library, 345 E. 47th St., New York, N. Y. 10017. Phone (212) 644-7611.

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In order to expedite European orders for the ASME Boiler and Pressure Vessel Code and related titles, special arrangements have been made with the British Standards Institution, (T.H.E.) Maylands Avenue, Hemel Hempstead, Herts HP 2 4SQ, England, to stock and sell these titles.

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ASME members are usually eligible for a 50% discount on special publications and a 20% discount on Codes and Standards (exceptions are indicated). In all cases, L before a price indicates the list price of the volume, and M indicates member price. All books may be ordered from the ASME Order Department, 345 E. 47th Street, N.Y., N. Y. 10017.

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- A17.1-1971 Elevators, Dumbwaiters, Escalators and Moving Walks (With Supplements a to f), Book No. A00047, L-\$19.00, M-\$15.20
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- A112.14.1-1975 Backwater Valves, Book No. J00035, L-\$3.00, M-\$2.40
- A112.18.1-1975 Finished and Rough Brass Plumbing Fixture Fittings, Book No. J00029, L-\$4.00, M-\$3.20
- A112.19.1-1973 Enameled Cast Iron Plumbing Fixtures, Book No. J00011, L-\$3.50, M-\$2.80
- A112.19.2-1973 Vitreous China Plumbing Fixtures, Book No. J00012, L-\$4.50, M-\$3.60
- A112.19.3-1976 Stainless Steel Plumbing Fixtures (Designed for Residential Use), Book No. J00050, L-\$4.50, M-\$3.60

- A112.21.1-1968 (R1974) Floor Drains, Book No. J00040, L-\$3.50, M-\$2.80
 A112.21.2-1971 Roof Drains, Book No. J00002, L-\$2.75, M-\$2.20
 A112.21.3-1976 Hydrants for Utility and Maintenance Use, Book No. J00051, L-\$4.00, M-\$3.20
 A112.26.1-1969 (R1975) Water Hammer Arresters, Book No. K00020, L-\$4.00, M-\$3.20
 A112.36.2-1975 Metallic Cleanouts, Book No. J00045, L-\$3.00, M-\$2.40
 A113.1-1964 (R1971) Safety Code for Mechanized Parking Garage Equipment, Book No. M00054, L-\$5.00, M-\$4.00

Threads & Limits and Fits

- B1 Report (1972) ISO Metric Screw Threads (Not an ANSI Standard), Book No. N00046, L-\$4.50, M-\$3.60
 B1.1-1974 Unified Inch Screw Threads (UN and UNR Thread Form), Book No. M00028, L-\$15.00, M-\$12.00
 B1.2-1974 Gages and Gaging for Unified Inch Screw Threads, Book No. N00058, L-\$11.00, M-\$8.80
 B1.5-1977 Acme Screw Threads, Book No. N00027, L-\$10.00, M-\$8.00
 B1.7-1965 (R1972) Nomenclature Definitions and Letter Symbols for Screw Threads, Book No. L00011, L-\$3.25, M-\$2.60
 B1.8-1977 Stub Acme Screw Threads, Book No. N00028, L-\$7.50, M-\$6.00
 B1.9-1973 Buttress Inch Screw Threads 7°/45° Form With 0.6 Pitch Basic Height of Thread Engagement, Book No. N00029, L-\$5.00, M-\$4.00
 B1.10-1958 Unified Miniature Screw Threads, Book No. N00025, L-\$3.00, M-\$2.40
 B1.11-1958 (R1972) Microscope Objective Thread, Book No. N00020, L-\$2.25, M-\$1.80
 B1.12-1972 Class 5 Interference—Fit Thread, Book No. N00032, L-\$2.75, M-\$2.20
 B1.16-1972 American Gaging Practice for Metric Screw Threads, Book No. N00026, L-\$5.00, M-\$4.00
 B1.20.3-1976 Dryseal Pipe Threads (Inch), Book No. N00076, L-\$6.00, M-\$4.80
 B1.20.4-1976 Dryseal Pipe Threads (Metric Translation of ANSI B1.20.3-1976), Book No. N00077, L-\$6.00, M-\$4.80
 B2.1-1968 Pipe Threads (Except Dryseal), Book No. L00018, L-\$5.50, M-\$4.40
 B2.2-1968 Dryseal Pipe Threads, Book No. M00036, L-\$5.50, M-\$4.40
 B2.4-1966 (R1974) Hose Coupling Screw Threads, Book No. K00014, L-\$3.25, M-\$2.60
 B4.1-1967 (R1974) Preferred Limits and Fits for Cylindrical Parts, Book No. L00022, L-\$4.00, M-\$3.20

Machine Tools

- B5.1-1975 T-Slots, Their Bolts, Nuts and Tongues, Book No. M00024, L-\$3.00, M-\$2.40
 B5.5-1959 (R1972) Rotating Air Cylinders and Adapters, Book No. L00031, L-\$2.25, M-\$1.80
 B5.8-1972 Chucks and Chuck Jaws, Book No. J00024, L-\$4.50, M-\$3.60
 B5.9-1967 (R1972) Spindle Noses for Tool Room Lathes, Engine Lathes, Turret Lathes and Automatic Lathes, Book No. M00010, L-\$4.00, M-\$3.20
 B5.10-1963 (R1972) Machine Tapers, Book No. L00004, L-\$4.00, M-\$3.20
 B5.11-1964 (R1973) Spindle Noses and Adjustable Adapters for Multiple Spindle Drilling Heads, Book No. M00008, L-\$2.25, M-\$1.80
 B5.16-1952 (R1972) Accuracy of Engine and Tool Room Lathes, Book No. J00004, L-\$2.25, M-\$1.80
 B5.18-1972 Spindle Noses and Tool Shanks for Milling Machines, Book No. M00009, L-\$3.50, M-\$2.80
 B5.20-1958 Machine Pins, Book No. L00003, L-\$2.25, M-\$1.80
 B5.25-1968 (R1975) Die Sets, Book No. L00027, L-\$3.50, M-\$2.80
 B5.28-1971 Mounting Dimensions of Lubricating and Coolant Pumps for Machine Tools, Book No. L00009, L-\$2.75, M-\$2.20
 B5.32-1977 Grinding Machines, Surface, Reciprocating Table—Horizontal Spindle, Book No. J00028, L-\$4.00, M-\$3.20
 B5.32.1-1977 Grinding Machines, Surface, Reciprocating Table—Vertical Spindle, Book No. J00053, L-\$3.00, M-\$2.40
 B5.33-1970 External Cylindrical Grinding Machines—Plain, Book No. M00038, L-\$2.75, M-\$2.20
 B5.35-1969 (R1975) Machine Mounting Specifications for Abrasive Discs and Plate Mounted Wheels, Book No. M00035, L-\$3.50, M-\$2.80
 B5.37-1970 External Cylindrical Grinding Machines—Centerless, Book No. M00039, L-\$2.25, M-\$1.80
 B5.40-1977 Spindle Noses and Tool Shanks for Horizontal Boring Machines, Book No. M00048, L-\$6.00, M-\$4.80
 B5.41-1968 (R1973) Quill Flanges and Spindle Ends for Upright and Horizontal Drill Spindles for Production Type Drilling Machines, Book No. K00018, L-\$2.25, M-\$1.80
 B5.42-1970 External Cylindrical Grinding Machines—Universal, Book No. M00040, L-\$2.50, M-\$2.00
 B5.43-1971 Modular Machine Tool Standards, Book No. M00021, L-\$3.50, M-\$2.80
 B5.44-1971 Rotary Table Surface Grinding Machines, Book No. M00061, L-\$3.50, M-\$2.80
 B5.45-1972 Milling Machines, Book No. M00067, L-\$2.75, M-\$2.20
 B5.46-1972 Symbols for Machine Tool Indicator Plates, Book No. M00065, L-\$4.50, M-\$3.60
 B5.47-1972 Milling Machine Arbor Assemblies, Book No. M00074, L-\$3.50, M-\$2.80
 B5.48-1977 Ball Screws, Book No. M00089, L-\$3.50, M-\$2.80
 B5.49-1977 Glossary of Mechanical Press Terms, Book No. M00090, L-\$3.50, M-\$2.80

Gears & Power Transmission Safety

- B6.1-1968 (R1974) Tooth Proportions for Coarse-Pitch Involute Spur Gears, Book No. M00011, L-\$4.00, M-\$3.20

- B6.7-1967 (R1974) Tooth Proportions for Fine-Pitch Involute Spur and Helical Gears, Book No. M00026, L-\$5.00, M-\$4.00
 B6.9-1956 (R1962) Design for Fine-Pitch Wormgearing, Book No. J00026, L-\$2.25, M-\$1.80
 B6.12-1964 (R1974) Nomenclature of Gear-Tooth Wear and Failure, Book No. L00012, L-\$4.00, M-\$3.20
 B6.13-1965 (R1974) System for Straight Bevel Gears, Book No. M00020, L-\$4.00, M-\$3.20
 B15.1-1972 Safety Standard for Mechanical Power Transmission Apparatus, Book No. B00009, L-\$4.00, M-\$3.20

Pipe Flanges, Fittings, Gaskets & Valves

- B16.1-1975 Cast Iron Pipe Flanges and Flanged Fittings—Class 25, 125, 250 and 800, Book No. J00017, L-\$6.00, M-\$4.80
 B16.3-1977 Malleable-Iron Threaded Fittings, Class 150 and 300, Book No. L00005, L-\$6.00, M-\$4.80
 B16.4-1977 Cast-Iron Threaded Fittings, Class 125 and 250, Book No. J00022, L-\$5.00, M-\$4.00
 B16.5-1977 Steel Pipe Flanges and Flanged Fittings (Including Ratings for Class 150, 300, 400, 600, 900, 1500, and 2500), Book No. M00015, L-\$15.00, M-\$12.00
 B16.9-1971 Factory-Made Wrought Steel Buttwelding Fittings, Book No. M00014, L-\$4.00, M-\$3.20
 B16.10-1973 Face-to-Face and End-to-End Dimensions of Ferrous Valves, Book No. J00031, L-\$4.00, M-\$3.20
 B16.11-1973 Forged Steel Fittings, Socket-Welding and Threaded, Book No. M00016, L-\$3.00, M-\$2.40
 B16.12-1977 Cast-Iron Threaded Drainage Fittings, Book No. J00021, L-\$4.50, M-\$3.60
 B16.14-1977 Ferrous Pipe Plugs, Bushings and Locknuts with Pipe Threads, Book No. J00032, L-\$4.50, M-\$3.60
 B16.15-1971 Cast Bronze Threaded Fittings, 125 and 250 lb., Book No. J00010, L-\$3.50, M-\$2.80
 B16.18-1972 Cast Bronze Solder Joint Pressure Fittings, Book No. J00015, L-\$3.50, M-\$2.80
 B16.20-1973 Ring-Joint Gaskets and Grooves for Steel Pipe Flanges, Book No. L00030, L-\$4.50, M-\$3.60
 B16.21-1962 Nonmetallic Gaskets for Pipe Flanges, Book No. L00015, L-\$3.00, M-\$2.40
 B16.22-1973 Wrought Copper and Bronze Solder-Joint Pressure Fittings, Book No. M00030, L-\$3.50, M-\$2.80
 B16.23-1976 Cast Copper Alloy Solder Joint Drainage Fittings - DWV, Book No. J00014, L-\$15.00, M-\$12.00
 B16.24-1971 Bronze Flanges and Flanged Fittings, 150 and 300 lb., Book No. J00009, L-\$3.50, M-\$2.80
 B16.25-1972 Buttwelding Ends, Book No. J00013, L-\$4.00, M-\$3.20
 B16.26-1975 Cast Copper Alloy Fittings for Flared Copper Tubes, Book No. J00008, L-\$3.00, M-\$2.40
 B16.28-1964 (R1972) Wrought Steel Buttwelding Short Radius Elbows and Returns, Book No. M00053, L-\$4.00, M-\$3.20
 B16.29-1973 Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings, Book No. N00057, L-\$4.00, M-\$3.20
 B16.31-1971 Non-Ferrous Pipe Flanges, 150, 300, 400, 600, 900, 1500 and 2500 lb., Book No. J00042, L-\$4.00, M-\$3.20
 B16.32-1973 Cast Bronze Solder - Joint Fittings for Solvent Drainage Systems, Book No. J00044, L-\$3.50, M-\$2.80
 B16.33-1973 Small Manually Operated Metallic Gas Valves in Gas Distribution Systems Whose Maximum Allowable Operating Pressure Does Not Exceed 60 PSIG or 125 PSIG, Book No. J00006, L-\$4.00, M-\$3.20
 B16.34-1977 Steel Valves (Flanged and Buttwelding End), Book No. J00018, L-\$15.00, M-\$12.00
 B16.36-1975 Steel Orifice Flanges, Class 300, 600, 900, 1500 and 2500, Book No. J00046, L-\$4.00, M-\$3.20
 B16.39-1977 Malleable Iron Threaded Pipe Unions, Class 150, 250 and 300, Book No. L00049, L-\$4.00, M-\$3.20

Fasteners & Keys

- B17.1-1967 (R1973) Keys and Keyseats, Book No. J00038, L-\$2.75, M-\$2.20
 B17.2-1967 (R1972) Woodruff Keys and Keyseats, Book No. J00037, L-\$2.75, M-\$2.20
 B18.1.1-1972 Small Solid Rivets, Book No. M00006, L-\$3.50, M-\$2.80
 B18.1.2-1972 Large Rivets, Book No. K00023, L-\$2.75, M-\$2.20
 B18.2.1-1972 Square and Hex Bolts and Screws, Book No. M00014, L-\$4.50, M-\$3.60
 B18.2.2-1972 Square and Hex Nuts, Book No. M00043, L-\$4.50, M-\$3.60
 B18.3-1977 Socket Cap, Shoulder and Set Screws—Inch Series, Book No. M00007, L-\$6.00, M-\$4.80
 B18.5-1971 Round Head Bolts, Book No. L00032, L-\$3.25, M-\$2.60
 B18.6.1-1972 Wood Screws, Book No. M00005, L-\$4.00, M-\$3.20
 B18.6.2-1972 Slotted Head Cap Screws, Square Head Set Screws and Slotted Headless Set Screws, Book No. K00012, L-\$4.00, M-\$3.20
 B18.6.3-1972 Machine Screws and Machine Screw Nuts, Book No. M00004, L-\$9.50, M-\$7.60
 B18.6.4-1966 (R1975) Slotted and Recessed Head Tapping Screws and Metallic Drive Screws, Book No. N00021, L-\$6.00, M-\$4.80
 B13.7-1972 General Purpose Semi-Tubular Rivets, Full Tubular Rivets, Split Rivets and Rivet Caps, Book No. N00059, L-\$3.50, M-\$2.80
 B18.8.1-1972 (R1977) Clevis Pins and Cotter Pins, Book No. L00024, L-\$2.75, M-\$2.20
 B18.9-1958 (R1977) Plug Bolts, Book No. L00021, L-\$2.75, M-\$2.20
 B18.10-1963 (R1975) Track Bolts and Nuts, Book No. M00025, L-\$2.75, M-\$2.20
 B18.11-1961 (R1975) Miniature Screws, Book No. K00037, L-\$2.75, M-\$2.20
 B18.12-1962 (R1975) Glossary of Terms for Mechanical Fasteners, Book No. M00046, L-\$6.50, M-\$5.20

- B18.13-1965 (R1975) Screw and Washer Assemblies—Sems, Book No. N00043, L-\$3.50, M-\$2.80
 B18.15-1969 Forged Eyebolts, Book No. M00037, L-\$3.50, M-\$2.80
 B18.17-1968 (R1975) Wing Nuts, Thumb Screws and Wing Screws, Book No. J00005, L-\$3.50, M-\$2.80
 B18.21.1-1972 Lock Washers, Book No. L00002, L-\$3.50, M-\$2.80
 B18.22.1-1965 (R1975) Plain Washers (Redesignation of B27.2-1965), Book No. L00019, L-\$2.75, M-\$2.20
 B18.23.1-1967 (R1975) Beveled Washers (Redesignation of B27.4-1967), Book No. L00006, L-\$2.25, M-\$1.80

Transmission Chains, Washers, Conveyors & Compressors

- B19.3-1972 Safety Standard for Compressors for Process Industries, Book No. B00003, L-\$3.50, M-\$2.80
 B20.1-1976 Safety Standards for Conveyors and Related Equipment, Book No. B00005, L-\$4.00, M-\$3.20
 B27.5-1969 General Purpose Rectangular Uniform Section Retaining Rings, Book No. L00023, L-\$2.75, M-\$2.20
 B27.6-1972 (R1977) General Purpose Uniform Cross Section Spiral Retaining Rings, Book No. L00037, L-\$5.00, M-\$4.00
 B29.1-1975 Precision Power Transmission Roller Chains Attachments and Sprockets, Book No. M00050, L-\$7.50, M-\$6.00
 B29.2-1957 (R1971) Inverted Tooth (Silent) Chains and Sprocket Teeth, Book No. M00002, L-\$3.50, M-\$2.80
 B29.3-1954 (R1974) Double-Pitch Power Transmission Roller Chains and Sprockets, Book No. K00075, L-\$4.00, M-\$3.20
 B29.4-1972 Double-Pitch Conveyor Roller Chains, Attachments, and Sprockets, Book No. M00072, L-\$4.25, M-\$3.40
 B29.6-1972 Steel Detachable Link Chains, Attachments and Sprockets, Book No. M00066, L-\$5.50, M-\$4.40
 B29.7-1971 Malleable Iron Detachable Link Chain and Attachments, Book No. M00018, L-\$4.50, M-\$3.60
 B29.8-1977 Leaf Chain, Clevises and Sheaves, Book No. M00003, L-\$5.00, M-\$4.00
 B29.9-1968 (R1974) Small Pitch Silent Chains and Sprocket Tooth Form Less Than 3/8" Pitch, Book No. K00077 L-\$2.75, M-\$2.20
 B29.10-1972 Heavy Duty Offset Sidebar Power Transmission Roller Chains and Sprocket Teeth, Book No. M00078, L-\$5.00, M-\$4.00
 B29.11-1974 Combination Chains, Attachments and Sprocket Teeth, Book No. K00081, L-\$5.50, M-\$4.40
 B29.12-1974 Steel Bushed Rollerless Chains, Attachments and Sprocket Teeth, Book No. K00030, L-\$3.50, M-\$2.80
 B29.13-1972 700 Class Pintle Chains, Attachments and Sprocket Teeth, Book No. M00064, L-\$3.50, M-\$2.80
 B29.14-1971 "H" Type Mill Chains—Attachments and Sprocket Teeth, Book No. M00062, L-\$3.50, M-\$2.80
 B29.15-1973 Heavy Duty Roller Type Conveyor Chains and Sprocket Teeth, Book No. M00079, L-\$3.50, M-\$2.80
 B29.16-1974 Welded Steel Type Mill Chains, Attachments, and Sprocket Teeth, Book No. K00079, L-\$4.50, M-\$3.60
 B29.17-1974 Hinge Type Flat Top Conveyor Chains and Sprocket Teeth, Book No. K00078, L-\$3.50, M-\$2.80
 B29.18-1974 Welded Steel-Type Drag Chains, Attachments, and Sprocket Teeth, Book No. K00080, L-\$3.50, M-\$2.80
 B29.19-1976 A and CA550 and 620 Roller Chains, Attachments, and Sprockets, Book No. K00085, L-\$4.50, M-\$3.60

Cranes, Derricks, Hoists, Jacks & Slings

- B30.1-1975 Jacks, Book No. B00007, L-\$4.00, M-\$3.20
 B30.2.0-1976 Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder), Book No. B00011, L-\$6.00, M-\$4.80
 B30.3-1975 Hammerhead Tower Cranes, Book No. J00033, L-\$4.50, M-\$3.60
 B30.4-1973 Portal, Tower and Pillar Cranes, Book No. J00001, L-\$4.50, M-\$3.60
 B30.5-1968 Crawler, Locomotive and Truck Cranes, Book No. B00012, L-\$4.00, M-\$3.20
 B30.6-1969 Derricks, Book No. B00013, L-\$3.25, M-\$2.60
 B30.7-1971 Base Mounted Drum Hoists, Book No. B00002, L-\$3.50, M-\$2.80
 B30.8-1971 Floating Cranes and Floating Derricks, Book No. J00023, L-\$4.50, M-\$3.60
 B30.9-1971 Slings, Book No. B00010, L-\$5.00, M-\$4.00
 B30.10-1975 Hooks, Book No. J00048, L-\$4.00, M-\$3.20
 B30.11-1973 Monorail Systems and Underhung Cranes, Book No. B00015, L-\$4.00, M-\$3.20
 B30.12-1975 Handling Loads Suspended from Rotorcraft, Book No. J00047, L-\$5.50, M-\$4.40
 B30.13-1977 Controlled Mechanical Storage Cranes, Book No. J00052, L-\$6.00, M-\$4.80
 B30.15-1973 Mobile Hydraulic Cranes, Book No. B00017, L-\$5.50, M-\$4.40
 B30.16-1973 Overhead Hoists, Book No. B00001, L-\$4.50, M-\$3.60

Piping

Code for Pressure Piping, B31 Interpretations: All current cases, Book No. M00033, L-\$13.00, M-\$10.40. Three Year Subscription Service, L-\$18.00, M-\$14.40

Sets forth the conditions under which new materials may be used, the Committee's interpretations of code rules as they apply to specific construction problems of code users, and special provisions to cover conditions encountered in nuclear installations. Individual Cases (Book No. M00034) are available at \$1.50, ASME members \$1.20. Please specify individual Case number.

B31 Guide, Corrosion Control for ANSI B31.1 Power Piping Systems, Book No. A00089, L-\$2.00, M-\$1.60

- B31.1-1977 Power Piping (with Addenda up to the 1980 edition), Book No. A00058, L-\$50.00, M-\$40.00
 B31.2-1968 Fuel Gas Piping, Book No. A00036, L-\$5.00, M-\$4.00
 B31.3-1977 Chemical Plant and Petroleum Refinery Piping (with Addenda up to the 1980 Edition), Book No. A00037, L-\$50.00, M-\$40.00
 B31.4-1974 Liquid Petroleum Transportation Piping Systems (Including 1977 Addenda), Book No. A00038, L-\$10.00, M-\$8.00
 B31.4a-1977 Referenced Standards Addendum to B31.4-1974, Liquid Petroleum Transportation Piping Systems, Book No. A00039, L-\$1.25, M-\$1.00
 B31.5-1974 Refrigeration Piping, Book No. A00040, L-\$9.50, M-\$7.60
 B31.7-1969 Nuclear Power Piping (Including 1971 and 1972 Addenda), Book No. A00042, L-\$19.00, M-\$15.20
 B31.7a-1972 Addenda only, Book No. A00053, L-\$1.25, M-\$1.00
 B31.7b-1971 Addenda only (Includes B31.7a-1971), Book No. A00043, L-\$4.25, M-\$3.40
 B31.7c-1971 Addenda only, Book No. A00044, L-\$4.25, M-\$3.40
 B31.8-1975 Gas Transmission and Distribution Piping Systems, Book No. A00045, L-\$15.00, M-\$12.00
 ASME Guide for Gas Transmission and Distribution Piping Systems—1976 Including all Addenda through December 1978 (See page SR-12—ASME Standards), Book No. A00030, L-\$100.00, M-\$80.00; Binder for Gas Guide, Book No. A00028, L-\$7.50, M-\$6.00

Surface Texture, Pipe, Gages, and Industrial Trucks

- B32.1-1952 (R1977) Preferred Thickness for Uncoated, Thin, Flat Metals (Under 0.250 in.), Book No. L00025, L-\$2.25, M-\$1.80
 B32.2-1969 (R1974) Preferred Diameters for Round Wire—0.500 inches and under, Book No. M00012, L-\$2.25, M-\$1.80
 B32.3-1977 Preferred Metric Thicknesses and Widths for Flat Metal Products, Book No. L00045, L-\$2.50, M-\$2.00
 B32.4-1977 Preferred Metric Sizes for Round, Square and Hexagon Metal Products, Book No. L00046, L-\$2.50, M-\$2.00
 B36.10-1975 Welded and Seamless Wrought Steel Pipe, Book No. M00031, L-\$4.00, M-\$3.20
 B36.19-1976 Stainless Steel Pipe, Book No. M00013, L-\$3.50, M-\$2.80
 B40.1-1974 Gauges: Pressure and Vacuum, Indicating Dial Type—Elastic Element, Book No. K00015, L-\$5.00, M-\$4.00
 B40.2-1977 Gauges and Indicators: Pressure and Vacuum—Indicating Digital Type, Book No. K00088, L-\$7.00, M-\$5.60
 B46.1-1962 (R1971) Surface Texture, Book No. M00019, L-\$4.00, M-\$3.20
 B47.1-1974 Gage Blanks, Book No. M00082, L-\$20.00, M-\$16.00
 B55.1-1961 Specifications for Multiple V-Belt Drives, Book No. M00042, L-\$2.75, M-\$2.20
 B56.1-1975 Low Lift and High Lift Trucks, Book No. B00006, L-\$6.50, M-\$5.20
 B73.1-1974 Specifications for Horizontal, End Suction Centrifugal Pumps for Chemical Process, Book No. J00019, L-\$4.00, M-\$3.20
 B73.2-1975 Specifications for Vertical In-Line Centrifugal Pumps for Chemical Process, Book No. J00049, L-\$4.50, M-\$3.60
 B88.1-1972 Guide for Dynamic Calibration of Pressure Transducers, Book No. L00042, L-\$5.00, M-\$4.00
 B88.2-1974 Procedure for Bench Calibration of Tank Level Gaging Tapes and Sounding Rules, Book No. L00043, L-\$2.75, M-\$2.20
 B89.1.6-1976 Measurement of Qualified Plain Internal Diameters for Use as Master Rings and Ring Gages, Book No. L00048, L-\$6.00, M-\$4.80
 B89.1.9-1973 Precision Inch Gage Blanks for Length Measurement (Thru 20 inches), Book No. L00044, L-\$5.00, M-\$4.00
 B89.3.1-1972 Measurement of Out-of-Roundness, Book No. L00020, L-\$4.00, M-\$3.20
 B89.6.2-1973 Temperature and Humidity Environment for Dimensional Measurement, Book No. L00047, L-\$6.50, M-\$5.20

Cutting Tools, Holders, Drivers, Bushings and Punches

- B94.1-1977 Blanks and Semi-Finished Blanks for Solid Carbide Taps, Book No. M00055, L-\$5.00, M-\$4.00
 B94.2-1971 Reamers, Book No. L00028, L-\$6.75, M-\$5.40
 B94.3-1965 (R1972) Straight Cut-Off Blades for Lathes and Screw Machines, Book No. M00036, L-\$2.25, M-\$1.80
 B94.4-1976 Identification System for Indexable Inserts for Cutting Tools, Book No. M00057, L-\$3.50, M-\$2.80
 B94.5-1974 Carbide Blanks and Single-Point Brazed Tools, Book No. N00018, L-\$4.00, M-\$3.20
 B94.6-1966 (R1972) Knurling, Book No. K00022, L-\$2.75, M-\$2.20
 B94.7-1966 (R1972) Hobs, Book No. N00056, L-\$3.50, M-\$2.80
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N-2 Manufacturers' Data Report for Nuclear Part and Appurtenances (E00040)

N-3 Owners' Data Report for Nuclear Power Plant Components (E00024)

N-5 Data Report for Field Installation of Nuclear Power Plant Components, Component Supports, and Appurtenances (E00025)

N-6 Manufacturers' Data Report for Storage Tanks (E00054)

N-7 Manufacturers' Data Report for Storage Tank Parts and Appurtenances (E00055)

NCS-1 Designers' Data Report for Core Support Structures-Fabricated by Others (E00065)

NCS-1A Fabricators' Data Report for Core Support Structures-Designed by Others (E00066)

NCS-2 Manufacturers' Data Report for Core Support Structures (E00067)

NCS-3 Manufacturers' Data Report for Core Support Structures, as Required by the Provisions of ASME Code Section III, Division 1 (E00078)

NCS-4 Fabricators' Data Report for Core Support Structures and Related Parts for Appurtenances Designed by Others, as Required by the Provisions of ASME Code, Section III, Division 1 (Alternative to Form NCS-1A) (E00079)

NF-1 Manufacturers' Data Report for Component Supports (E00075)

NF-2 Manufacturers' Partial Data Report for Parts for Component Support (E00076)

NIS-1 Owners' Data Report for Inservice Inspection (E00029)

NM-1 Data Report for Tubular Products and Fittings Welded with Filler Metal (E00080)

NPP-1 Fabricated Nuclear Piping (E00062)

NPV-1 Manufacturers' Data Report for Nuclear Pumps or Valves (E00037)

NR-1 Manufacturers' Data Report of Rupture Discs (E00026)

NV-1 Manufacturers' Data Report for Safety and Safety Relief Valves (E00042)

P-2 Manufacturers' Data Report for All Types of Boilers Except Water Tube (E00068)

P-2A Manufacturers' Data Report for All Types Electric Boilers (E00120)

P-3 Manufacturers' Data Report for Water-tube Boilers, Super-heaters, Waterwalls, and Economizers (E00069)

P-3A Engineering - Contractor Data Report for a Complete Boiler Unit (E00070)

P-4 Manufacturers' Partial Data Report (E00071)

P-4A Manufacturers' Data Report for Fabricated Piping (E00072)

P-5 Summary Data Report for Process Steam Generators (E00073)

P-6 Manufacturers' Data Report Supplementary Sheet (E00074)

QB-482 Recommended Form-Procedure Specification Applying to Ferrous and Nonferrous Materials and All Brazing Processes (E00031)

QB-483 Recommended Form-Manufacturers' Record of Brazing Procedure Qualification Tests (E00032)

QB-484 Recommended Form-Performance Specification and Manufacturers' Record of Brazer Qualification Test (E00033)

QW-482 Welding Procedure Specification (WPS) (E00006)

QW-483 Procedure Qualification Record (PQR) (E00007)

QW-484 Manufacturers' Record of Welder or Welding Operator Qualification Tests (E00008)

RP-1 Manufacturers' Data Report for Fiberglass-Reinforced Plastic Pressure Vessels (E00115)

RP-2 Manufacturers' Partial Data Report (E00116)

U-1 Manufacturers' Data Report for Pressure Vessels (E00108)

U-1A Manufacturers' Data Report for Pressure Vessels (Alternate Form for Single Chamber Completely Shop-Fabricated Vessels Only) (E00117)

U-2 Manufacturers' Partial Data Report (A Part of a Pressure Vessel Fabricated by One Manufacturer for Another) (E00110)

U-3 Manufacturers' Certificate of Compliance Covering Pressure Vessels to be Stamped with the UM-Symbol (E00111)

U-4 Manufacturers' Data Report Supplementary Sheet (E00110)

Other Titles of Interest to Boiler and Pressure Vessel Code Users

Companies Holding Boiler and Pressure Vessel Certificates of Authorization for Use of Code Symbol Stamps—1977 Edition (With Winter 1977 Supplement), Book No. E00032, L-\$35.00, M-\$28.00

Companies Holding Nuclear Certificates of Authorization (One Year Subscription-Issued bimonthly), Book No. E00061, L-\$45.00, M-\$36.00

Criteria for Design of Elevated Temperature Class 1 Components in Section III, Division 1, of the ASME Boiler and Pressure Vessel Code, 1976, Book No. E00097, L-\$20.00, M-\$16.00

Criteria of the ASME Boiler & Pressure Vessel Code for Design by Analysis Sections III & VIII, Div. 2, 1969, Book No. I00059, L-\$1.50, M-\$1.20

Design Criteria of Boilers and Pressure Vessels—1977, Book No. G00114, L-\$7.50, M-\$6.00

History of the ASME Boiler Code, 1955, Book No. G00028, L-\$10.00, M-\$8.00

Proposed Section XI—Division 2, Rules for Inspection and Testing of Components of Gas-Cooled Plants, Book No. E00122, L-\$30.00, M-\$24.00

Proposed Section XI—Division 3, Rules for Inspection and Testing of Components of Liquid Metal Cooled Plants, Book No. E00123, L-\$15.00, M-\$12.00

Proposed Standard for Acoustic Emission Examinations During Application of Pressure, 1975, Book No. E00096, L-\$2.50, M-\$2.00

Sample Analysis of a Piping System: Class 1 Nuclear, 1972, Book No. E00063, L-\$4.50, M-\$3.60

ASME CODES

Performance Test Codes

Test methods prescribed in the PTC's enable users to obtain accurate information on adaptability of equipment, best methods of operation, capacity and efficiency, and verification of manufacturer's guarantees. Each one contains a check list of items on which agreement should be reached before starting tests, specifies the instruments and testing apparatus needed, lists precautions, gives instructions for computing and tabulating results and shows how to correct results for deviations from specified test conditions.

The Performance Test Codes Committee is following a policy of submitting the PTC Documents to ANSI for approval as American National Standards. The documents that have been approved bear the ANSI/ASME designation. This PTC/ANSI relationship will reduce duplication of effort and promote the consensus standards concept.

ANSI	ASME	
PTC 1-1974	PTC 1-1970	General Instructions (With 1971 Addenda), Book No. C00017, L-\$5.00, M-\$4.00
PTC 2-1974	PTC 2-1971	Code on Definitions and Values, Book No. C00007, L-\$5.50, M-\$4.40
PTC 3.1-1974	PTC 3.1-1958	(R 1970) Diesel and Burner Fuels, Book No. D00024, L-\$10.00, M-\$8.00
PTC 3.2-1974	PTC 3.2-1954	(R 1970) Solid Fuels, Book No. C00023, L-\$5.50, M-\$4.40
PTC 3.3-1974	PTC 3.3-1969	Gaseous Fuels, Book No. D00038, L-\$9.00, M-\$7.20
PTC 4.1-1974	PTC 4.1-1964	(R 1973) Steam-Generating Units (With 1968 and 1969 Addenda), Book No. C00025, L-\$10.00, M-\$8.00
		Diagram for Testing of a Steam Generator, Figure 1 (Pad of 100), Book No. C00038, L-\$6.00, M-\$6.00
		Heat Balance of a Steam Generator, Figure 2 (Pad of 100), Book No. C00039, L-\$6.00, M-\$6.00
	PTC 4.1a-1964	ASME Test Form for Abbreviated Efficiency Test—Summary Sheet (Pad of 100), Book No. C00036, L-\$6.00, M-\$6.00
	PTC 4.1b-1964	(R 1965) ASME Test Form for Abbreviated Efficiency Test—Calculation Sheet (Pad of 100), Book No. C00037, L-\$6.00, M-\$6.00
PTC 4.2-1974	PTC 4.2-1969	Coal Pulverizers, Book No. C00006, L-\$4.50, M-\$3.60
PTC 4.3-1974	PTC 4.3-1968	Air Heaters, Book No. D00034, L-\$7.00, M-\$5.60
	PTC 5-1949	Reciprocating Steam Engines, Book No. C00022, L-\$2.75, M-\$2.20
PTC 6-1976	PTC 6-1976	Steam Turbines, Book No. C00028, L-\$15.00, M-\$12.00
Appendix to ANSI PTC 6-1974	PTC 6A-1964	(R 1973) Appendix A to Test Code for Steam Turbines (With 1968 Addenda), Book No. C00029, L-\$6.50, M-\$5.20
PTC 6 Report-1974	PTC 6 Report-1969	(R 1973) Guidance for Evaluation of Measurement Uncertainty in Performance Tests of Steam Turbines, Book No. D00041, L-\$5.00, M-\$4.00
PTC 6S Report-1974	PTC 6S Report-1970	(R 1973) Simplified Procedures for Routine Performance Tests of Steam Turbines, Book No. D00042, L-\$11.00, M-\$8.80
	PTC 7-1949	(R 1969) Reciprocating Steam-Driven Displacement Pumps, Book No. C00021, L-\$2.50, M-\$2.00
	PTC 7.1-1962	(R 1969) Displacement Pumps, Book No. D00026, L-\$4.00, M-\$3.20
	PTC 8.2-1965	Centrifugal Pumps (With 1973 Addenda), Book No. C00005, L-\$5.00, M-\$4.00
	1973 Addendum to PTC 8.2-1965	Centrifugal Pumps, Book No. C00002, L-\$1.25, M-\$1.00
PTC 9-1974	PTC 9-1970	Displacement Compressors, Vacuum Pumps and Blowers (With 1972 Errata, Book No. C00009, L-\$8.00, M-\$6.40)
PTC 10-1974	PTC 10-1965	(R 1973) Compressors and Exhausters, Book No. C00004, L-\$8.00, M-\$6.40
PTC 12.1-1975	PTC 12.1-1955	(R 1973) Feedwater Heaters, Book No. C00013, L-\$6.00, M-\$4.80
PTC 12.2-1975	PTC 12.2-1955	(R 1975) Steam Condensing Apparatus, Book No. C00026, L-\$8.00, M-\$6.40
PTC 12.3-1977	PTC 12.3-1977	Desaerators, Book No. D00023, L-\$10.00, M-\$8.00

ANSI	ASME	
PTC 14-1974	PTC 14-1970	Evaporating Apparatus, Book No. C00011, L-\$5.00, M-\$4.00
PTC 16-1974	PTC 16-1958	(R 1971) Gas Producers and Continuous Gas Generators, Book No. C00014, L-\$5.50, M-\$4.40
PTC 17-1974	PTC 17-1973	Reciprocating Internal-Combustion Engines, Book No. C00020, L-\$7.50, M-\$6.00
	PTC 18-1949	Hydraulic Prime Movers, Book No. C00018, L-\$5.00, M-\$4.00
PTC 20.1-1977	PTC 20.1-1977	Speed and Load-Governing Systems for Steam Turbine-Generator Units, Book No. C00019, L-\$12.00, M-\$9.60
	PTC 20.2-1965	Overspeed Trip Systems for Steam Turbine-Generator Units, Book No. C00041, L-\$5.00, M-\$4.00
PTC 20.3-1974	PTC 20.3-1970	Pressure Control Systems Used on Steam Turbine Generator Units, Book No. C00027, L-\$9.00, M-\$7.20
	PTC 21-1941	Dust Separating Apparatus, Book No. D00021, L-\$4.00, M-\$3.20
PTC 22-1974	PTC 22-1966	(R 1973) Gas Turbine Power Plants Book No. C00015, L-\$5.00, M-\$4.40
	PTC 23-1958	Atmospheric Water Cooling Equipment, Book No. D00022, L-\$6.00, M-\$4.80
PTC 24-1976	PTC 24-1976	Ejectors, Book No. C00010, L-\$7.50, M-\$6.00
PTC 25.3-1976	PTC 25.3-1976	Safety and Relief Valves, Book No. D00031, L-\$12.00, M-\$9.60
		1977 Addendum to ANSI/ASME PTC 25.3-1976 Safety and Relief Valves, Book No. D00032, L-\$1.00, M-\$0.80
	PTC 26-1962	Speed Governing Systems for Internal Combustion Engine-Generator Units, Book No. D00027, L-\$4.00, M-\$3.20
	PTC 27-1957	Determining Dust Concentration in a Gas Stream, Book No. C00008, L-\$5.00, M-\$4.00
PTC 28-1974	PTC 28-1965	(R 1973) Determining the Properties of Fine Particulate Matter, Book No. D00030, L-\$6.00, M-\$4.80
	PTC 29-1965	Speed-Governing Systems for Hydraulic Turbine-Generator Units, Book No. C00040, L-\$5.75, M-\$4.60
PTC 31-1974	PTC 31-1973	Ion Exchange Equipment, Book No. C00016, L-\$6.00, M-\$4.80
PTC 32.1-1974	PTC 32.1-1969	Nuclear Steam Supply Systems, Book No. C00012, L-\$6.50, M-\$5.20
	PTC 34 Draft	Draft ASME Code for In-Service Testing of Valves in Nuclear Power Plants, Book No. C00043, L-\$4.50, M-\$3.60
	PTC 35 Draft (April 1970)	Draft ASME Code for In-Service Testing of Pumps in Nuclear Power Plants, Book No. C00042, L-\$2.75, M-\$2.20

PTC Supplements on Instruments and Apparatus

	PTC 19.2-1964	Pressure Measurement, Book No. D00029, L-\$9.00, M-\$7.20
PTC 19.3-1974	PTC 19.3-1974	Temperature Measurement, Book No. C00035, L-\$16.00, M-\$12.80
	PTC 19.5-1972	Application, Part II of Fluid Meters: Interim Supplement on Instruments and Apparatus, Book No. G00018, L-\$14.00, M-\$11.20
	PTC 19.5.1-1964	Weighing Scales, Book No. D00028, L-\$3.75, M-\$3.00
	PTC 19.6-1955	Electrical Measurements in Power Circuits, Book No. D00007, L-\$7.00, M-\$5.60
	PTC 19.7-1961	Measurement of Shaft Horsepower, Book No. D00009, L-\$5.00, M-\$4.00
PTC 19.8-1974	PTC 19.8-1970	Measurement of Indicated Horsepower, Book No. D00008, L-\$5.50, M-\$4.40
PTC 19.10-1974	PTC 19.10-1968	Flue and Exhaust Gas Analyses, Book No. C00031, L-\$5.50, M-\$4.40
PTC 19.11-1974	PTC 19.11-1970	Water and Steam in the Power Cycle (Purity and Quality, Leak Detection and Measurement), Book No. D00011, L-\$9.00, M-\$7.20
	PTC 19.12-1958	Measurement of Time, Book No. D00012, L-\$2.75, M-\$2.20

ANSI	ASME	
PTC 19.13-1961	PTC 19.13-1961	Measurement of Rotary Speed, Book No. D00013, L-\$4.00, M-\$3.20
PTC 19.14-1958	PTC 19.14-1958	Linear Measurements, Book No. D00014, L-\$3.50, M-\$2.80
PTC 19.16-1965	PTC 19.16-1965	Density Determinations of Solids and Liquids, Book No. D00016, L-\$3.75, M-\$3.00
PTC 19.17-1965	PTC 19.17-1965	Determination of the Viscosity of Liquids, Book No. D00017, L-\$4.00, M-\$3.20
(Not a PTC)	(Not a PTC)	The Philosophy of Power Test Codes and Their Development, Book No. I00056, L-\$2.50, M-\$2.00
		Binders for Performance Test Codes —Blue cloth, 8-1/2 X 11 with rods, Book No. C00003, L-\$7.50, M-\$6.00

ASME Standards

APS-1	Recommended Guide for the Control of Dust Emissions—Combustion for Indirect Heat Exchangers 1968, Book No. N00055, L-\$2.75, M-\$2.20
—	Discussion on ASME Standard APS-1, 1967, Book No. G00049, L-\$2.75, M-\$2.20
APS-2	Recommended Guide for the Control of Oxides of Sulfur (With Supplement) 1970, Book No. N00051, L-\$3.50, M-\$2.80
—	Supplement only, Book No. N00054, L-\$1.25, M-\$1.00
No. 101	Operation and Flow Process Charts 1972, Book No. L00017, L-\$4.00, M-\$3.20
No. 102	Form for Use in Self-Appraisal of Industrial Plants 1947, Book No. M00001, L-\$2.75, M-\$2.20
No. 104	One-Piece Metallic Piston Rings 1954, Book No. L00016, L-\$2.25, M-\$1.80
No. 111	Recommended Practices for the Design of Marine Propulsion Turbine Lubricating Systems 1960, Book No. J00036, L-\$2.25, M-\$1.80
No. 112	Diaphragm Actuated Control Valve Terminology 1961, Book No. L00036, L-\$2.25, M-\$1.80
No. 113	Recommended Practices for the Flushing and Cleaning of Marine Propulsion Turbine Lubricating Systems 1964, Book No. M00051, L-\$2.25, M-\$1.80
No. 114	Recommended Practices for the Purification of Marine Propulsion Turbine Lubricating Oil 1964, Book No. M00052, L-\$2.25, M-\$1.80
No. 115	Recommended Practices for the Design, Operation and Maintenance of Marine Auxiliary Machinery Lubricating Systems 1968 (Includes ASME Standards No. 115A (Design Section only) Recommended Practices for the Design of Steam Turbine Driven Generator Lubricating Systems; 115B Recommended Practices for the Design of Marine Steam Turbine Driven Boiler Feed Pumps Lubricating Systems; 115C Recommended Practices for the Design of Marine Steam Turbine Driven Blowers Lubricating Systems), Book No. K00046, L-\$4.00, M-\$3.20
No. 115D	Recommended Practices or the Design of Lubricating Systems for Marine Steam Turbine Pumps for Various Ships Services 1969, Book No. K00059, L-\$2.75, M-\$2.20
No. 116	Recommended Practices for the Design of Steam Turbine Generator Oil Systems 1968, Book No. K00047, L-\$2.75, M-\$2.20
No. 117	Recommended Practices for the Cleaning of Steam Turbine Generator Oil Systems 1968, Book No. K00048, L-\$2.75, M-\$2.20
No. 118	Recommended Practices for the Purification of Steam Turbine Generator Oil 1968, Book No. K00049, L-\$2.75, M-\$2.20
No. 119	Recommended Practices for the Flushing and Cleaning of Marine Auxiliary Machinery Lubricating Systems 1968, Book No. K00050, L-\$2.75, M-\$2.20
No. 120	Recommended Practices for the Design of Gas Turbine Generator Lubricating Oil Systems 1969, Book No. K00058, L-\$2.75, M-\$2.20
No. 121	Recommended Practices for the Purification of Lubricating Oil in Marine Steam Turbine Driven Auxiliary Machinery 1969, Book No. K00060, L-\$2.75, M-\$2.20
CSD-1	ASME Safety Code—Controls and Safety Devices for Automatically Fired Boilers, Book No. A00091, L-\$7.50, M-\$6.00
LOS-2C1	ASTM-ASME Recommended Practices for the Flushing and Cleaning of Lubricating Systems of Various Turbine Driven Pumps for Marine Service, Book No. K00062, L-\$3.50, M-\$2.80
LOS-4C1	ASTM-ASME Recommended Practices for Flushing and Cleaning of Gas Turbine Generator Lubricating Oil Systems, Book No. K00063, L-\$3.50, M-\$2.80
LOS-5C1	ASTM-ASME Recommended Practices for the Flushing and Cleaning of Oil Systems for Lubrication and Control of Hydroelectric Equipment, Book No. K00065, L-\$3.50, M-\$2.80
LOS-5D1	ASTM-ASME Recommended Practices for the Design of Oil Systems for Lubrication and Control of Hydroelectric Equipment, Book No. K00068, L-\$3.50, M-\$2.80
LOS-5P1	ASTM-ASME Recommended Practice for the Purification of Oil Systems for Lubrication and Control of Hydroelectric Equipment, Book No. K00064, L-\$3.50, M-\$2.80
TWDPS-1	Recommended Practices for the Prevention of Water Damage to Steam Turbines Used for Electric Power Generation: Part I—Fossil Fueled Plants 1972, Book No. K00066, L-\$4.00, M-\$3.20
TWDPS-1	Recommended Practices for the Prevention of Water Damage to Steam Turbines Used for Electric Power Generation: Part II—Nuclear Fueled Plants 1973, Book No. K00072, L-\$4.00, M-\$3.20
—	Draft ASME Code for Pumps and Valves for Nuclear Power 1968 (With 1970 Addenda), Book No. N00047, L-\$5.50, M-\$4.40
—	Addenda only, Book No. N00050, L-\$2.25, M-\$1.80
—	ASME Guide for Gas Transmission and Distribution Piping Systems—1976 (Including all Addenda through December 1978), Book No. A00030, L-\$100.00, M-\$80.00
—	Binder for Gas Guide, Book No. A00028, L-\$7.50, M-\$6.00

BOOKS AND REPORTS

Aerospace

- Annals of Reliability and Maintainability, 1971, Book No. H00025, L-\$25.00, M-\$12.50.
 Integrated Design and Analysis of Aerospace Structures, 1975, Book No. G00096, L-\$12.00, M-\$6.00
 Measurement and Prediction of Structural and Biodynamic Crash-Impact Responses, 1976, Book No. G00107, L-\$20.00, M-\$10.00
 Reliability and Maintainability (Reprinted from Mechanical Engineering), 1966, Book No. H00054, L-\$2.00, M-\$1.00
 1968 Reliability and Maintainability Conference Proceedings—"Annals of Assurance Sciences," 1968, Book No. I00053, L-\$27.00, M-\$13.50
 Space Systems and Thermal Technology for the 70's: Aviation & Space Papers—Part I, 1970, Book No. I00073, L-\$45.00, M-\$22.50; Heat Transfer Papers—Part II, 1970, Book No. I00074, L-\$45.00, M-\$22.50
 Structural Dynamic Aspects of Bladed-Disk Assemblies, 1976, Book No. H00098, L-\$14.00, M-\$7.00

Air Pollution

- Ambient Air Quality Standards—Here We Are, What Do We Do? 1976, Book No. I00099, L-\$30.00, M-\$15.00
 Cooling Tower Plume Modeling and Drift Measurement—A Review of the State-of-the-Art, 1975, Book No. H00088, L-\$25.00, M-\$12.50
 Recommended Guide for the Prediction of the Dispersion of Airborne Effluents—Second Edition, 1973, Book No. H00037, L-\$6.00, M-\$3.00

Applied Mechanics

- Isolation of Mechanical Vibration, Impact and Noise—AMD-Vol. 1, 1973, Book No. G00047, L-\$25.00, M-\$12.50
 Biomechanics Symposium—AMD-Vol. 2, 1973, Book No. G00033, L-\$12.00, M-\$6.00
 Rock Mechanics Symposium—AMD-Vol. 3, 1973, Book No. I00012, L-\$12.50, M-\$6.25
 Mechanics and Sport—AMD-Vol. 4, 1973, Book No. H00007, L-\$25.00, M-\$12.50
 Surveys of Research in Transportation Technology—AMD-Vol. 5, 1973, Book No. H00006, L-\$18.00, M-\$9.00
 Numerical Solutions of Nonlinear Problems—AMD-Vol. 6, 1973, Book No. H00036, L-\$20.00, M-\$10.00
 Structural Optimization Symposium—AMD-Vol. 7, 1974, Book No. I00042, L-\$18.00, M-\$9.00
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 Reliability Design for Vibroacoustic Environments—AMD-Vol. 9, 1974, Book No. I00047, L-\$18.00, M-\$9.00
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 Computing Methods in Geophysical Mechanics—AMD-Vol. 25, 1977, Book No. I00113, L-\$22.00, M-\$11.00
 Computational Methods for Fluid-Structure Interaction Problems—AMD-Vol. 26, Book No. I00114, L-\$20.00, M-\$10.00
 Finite Elasticity—AMD-Vol. 27, Book No. G000129, L-\$20.00, M-\$10.00
 Applications of Holography in Mechanics, 1971, Book No. H00040, L-\$7.50, M-\$3.75
 Applied Mechanics Aspects of Nuclear Effects in Materials, 1971, Book No. H00073, L-\$20.00, M-\$10.00
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 Dynamic Response of Biomechanical Systems, 1970, Book No. G00075, L-\$15.00, M-\$7.50
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 Dynamics of Structured Solids, 1968, Book No. H00004, L-\$7.00, M-\$3.50
 Experimental Techniques in Shock and Vibrations, 1962, Book No. G00002, L-\$9.00, M-\$4.50

- Fluid-Solid Interaction, 1967, Book No. G00059, L-\$13.50, M-\$6.75
 Mathematical Theory of Dislocations, 1969, Book No. I00036, L-\$16.50, M-\$8.25
 Proceedings of the U.S. National Congress of Applied Mechanics
 7th—1974, Book No. G00085, L-\$25.00, M-\$12.50
 6th—1970, Book No. G00078, L-\$12.50, M-\$6.25
 4th—1962, Book No. H00024, L-\$44.00, M-\$22.00
 Surface Crack: Physical Problems and Computational Solutions, 1972, Book No. H00029, L-\$20.00, M-\$10.00
 Surface Mechanics, 1969, Book No. G00013, L-\$13.00, M-\$6.50
 Synthesis of Vibrating Systems, 1971, Book No. H00072, L-\$15.00, M-\$7.50
 System Identification of Vibrating Structures: Mathematical Models from Test Data, 1972, Book No. I00005, L-\$20.00, M-\$10.00
 Use of Models and Scaling in Shock and Vibration, 1963, Book No. I00010, L-\$7.00, M-\$3.50
 Wave Propagation in Solids, 1969, Book No. G00006, L-\$13.50, M-\$6.75

Bioengineering

- 1975 Advances in Bioengineering, 1975, Book No. G00097, L-\$12.00, M-\$6.00
 1976 Advances in Bioengineering, 1976, Book No. G00105, L-\$7.00, M-\$3.50
 1977 Advances in Bioengineering, 1977, Book No. H00103, L-\$16.00, M-\$8.00
 Advances in Bioengineering, 1974, Book No. H00077, L-\$18.00, M-\$9.00
 1967 Biomechanical and Human Factors, 1967, Book No. G00050, L-\$9.50, M-\$4.75
 Biomechanics, 1966, Book No. H00061, L-\$10.50, M-\$5.25
 Biomechanics Monograph, 1967, Book No. G00043, L-\$11.00, M-\$5.50
 1973 Biomechanics Symposium—AMD-Vol. 2, 1973, Book No. G00033, L-\$12.00, M-\$6.00
 1977 Biomechanics Symposium—AMD-Vol. 23, 1977, Book No. I00111, L-\$30.00, M-\$15.00
 Biomedical Fluid Mechanics, 1966, Book No. H00047, L-\$12.50, M-\$6.25

Computer Technology

- Interactive Computer Graphics in Engineering, 1977, Book No. G00118, L-\$8.00, M-\$4.00

Controls

- Control of Distributed Parameter Systems, 1969, Book No. G00032, L-\$5.00, M-\$2.50
 Differential Games: Theory and Applications, 1970, Book No. G00066, L-\$6.00, M-\$3.00
 Dynamics of Automatic Controls, 1948, Book No. G00014, L-\$7.00, M-\$3.50
 Identification of Parameters in Distributed Systems, 1974, Book No. I00019, L-\$7.00, M-\$3.50
 1976 Joint Automatic Control Conference—Productivity, 1976, Book No. I00103, L-\$50.00, M-\$50.00
 1970 Joint Automatic Control Conference, 1970, Book No. I00069, L-\$30.00, M-\$15.00
 Learning Systems, 1973, Book No. G00065, L-\$6.00, M-\$3.00
 Singular Perturbations: Order Reduction in Control System Design, 1972, Book No. G00070, L-\$4.50, M-\$2.25
 Stochastic Problems in Control, 1968, Book No. I00038, L-\$6.00, M-\$3.00
 Stochastic Processes in Dynamical Problems, 1969, Book No. G00016, L-\$13.00, M-\$6.50

Design

- Design Engineering Conference, 1960, Book No. I00035, L-\$6.00, M-\$3.00
 Design for Elevated Temperature Environment, 1971, Book No. G00035, L-\$7.50, M-\$3.75
 Design Technology Transfer, 1974, Book No. H00017, L-\$40.00, M-\$20.00
 Designing for High Impact Technology, 1967, Book No. G00048, L-\$3.50, M-\$1.75
 Failure Prevention and Reliability, 1977, Book No. H00101, L-\$30.00, M-\$15.00
 Finite Element Applications in Vibration Problems, 1977, Book No. H00102, L-\$16.00, M-\$8.00
 Flexible Rotor-Bearing System Dynamics:
 Part I—Critical Speeds and Response of Flexible Rotor Systems, 1972, Book No. H00042, L-\$5.00, M-\$2.50
 Part II—Bearing Influence and Representation in Rotor Dynamics Analysis, 1972, Book No. H00046, L-\$3.50, M-\$1.75
 Part III—Unbalance Response and Balancing of Flexible Rotors in Bearing, 1973, Book No. H00048, L-\$4.00, M-\$2.00
 New Design Standards for Flexible Couplings, 1966, Book No. H00050, L-\$3.50, M-\$1.75
 Physics of Fiber Contact, 1970, Book No. G00067, L-\$4.00, M-\$2.00

Fluids

- Advances in Fluidics (With Discussion Booklet), 1967, Book No. G00044, L-\$22.00, M-\$11.00
 Discussions only, Book No. H00008, L-\$2.00, M-\$1.00
 Applications of Fluid Mechanics to Wind Engineering, 1975, Book No. I00088, L-\$3.50, M-\$1.75
 Cavitation and Polyphase Flow Forum—1977, Book No. I00109, L-\$8.00, M-\$4.00
 Cavitation and Polyphase Flow Forum—1976, 1976, Book No. I00097, L-\$10.00, M-\$5.00

Cavitation and Polyphase Flow Forum, 1975, Book No. 100087, L-\$7.00, M-\$3.50
 Cavitation Forum—1971, 1971, Book No. 100002, L-\$5.50, M-\$2.75
 Cavitation Forum—1970, (With Discussion Booklet), 1970, Book No. 100071, L-\$5.50, M-\$2.75
 Cavitation in Fluid Machinery (With Discussion Booklet), 1965, Book No. 100043, L-\$16.00, M-\$8.00
 Discussions only, Book No. 100062, L-\$2.50, M-\$1.25
 Cavitation Research Facilities and Techniques (Including Discussions), 1964, Book No. 100044, L-\$12.50, M-\$6.25
 Discussions only, Book No. 100052, L-\$2.00, M-\$1.00
 Cavitation State of Knowledge (With Discussion Booklet), 1969, Book No. 100013, L-\$18.50, M-\$9.25
 Discussions only, Book No. 100025, L-\$2.50, M-\$1.25
 Cavity Flows, 1975, Book No. 100085, L-\$15.00, M-\$7.50
 Centrifugal Compressor and Pump Stability, Stall and Surge, 1976, Book No. 100098, L-\$20.00, M-\$10.00
 Condensation in High Speed Flows, 1977, Book No. G00119, L-\$16.00, M-\$8.00
 Cost of Inefficiency in Fluid Machinery, 1975, Book No. 100086, L-\$10.00, M-\$5.00
 Flow Studies in Air and Water Pollution, 1973, Book No. 100001, L-\$22.00, M-\$11.00
 Fluid Dynamic Measurements, 1971, Book No. G00081, L-\$17.50, M-\$8.75
 Fluid Jet Control Devices, 1962, Book No. G00003, L-\$8.50, M-\$4.25
 Fluid Mechanics in the Petroleum Industry, 1975, Book No. G00093, L-\$10.00, M-\$5.00
 Fluid Mechanics of Combustion, 1974, Book No. 100034, L-\$20.00, M-\$10.00
 Fluid Mechanics of Mixing, 1973, Book No. 100033, L-\$20.00, M-\$10.00
 Fluid Meters, Their Theory and Application—Sixth Edition, 1971, Book No. G00079, L-\$20.00, M-\$10.00
 Application—Part II of Fluid Meters: Interim Supplement 19.5 on Instruments and Apparatus, 1972, Book No. G00018, L-\$14.00, M-\$11.20
 Fully Separated Flows, 1964, Book No. 100045, L-\$8.50, M-\$4.25
 Measurement in Unsteady Flow, 1962, Book No. H00041, L-\$8.50, M-\$4.25
 Multi-Phase Flow Symposium, 1963, Book No. H00032, L-\$7.50, M-\$3.75
 Noise and Fluids Engineering, 1977, Book No. 100115, L-\$30.00, M-\$15.00
 Numerical/Laboratory Computer Methods in Fluid Mechanics, 1976, Book No. G00106, L-\$35.00, M-\$17.50
 Rheology, 1965, Book No. 100057, L-\$10.00, M-\$5.00
 Role of Nucleation in Boiling and Cavitation (With Discussion Booklet), 1970, Book No. 100072, L-\$22.00, M-\$11.00
 Discussions only, Book No. 100078, L-\$2.00, M-\$1.00
 Water Hammer, 1933, Book No. 100007, L-\$5.00, M-\$2.50
 Water Hammer in Hydraulics and Wave Surges in Electricity, 1961, Book No. 100041, L-\$15.00, M-\$12.00

Heat Transfer

Advances in Thermophysical Properties at Extreme Temperatures and Pressures, 1965, Book No. 100055, L-\$19.00, M-\$9.50
 Augmentation of Convective Heat and Mass Transfer, 1970, Book No. G00076, L-\$21.00, M-\$10.50
 Dry and Wet/Dry Cooling Towers for Power Plants—Vol. 6, 1973, Book No. H00015, L-\$14.50, M-\$7.25
 Environmental Effects of Thermal Discharges—The Elements of Formulating a Rational Public Policy, 1970, Book No. G00073, L-\$8.00, M-\$4.00
 Fifth Symposium on Thermophysical Properties, 1970, Book No. G00068, L-\$19.00, M-\$9.50
 Fourth Symposium on Thermophysical Properties, 1968, Book No. 100018, L-\$25.00, M-\$12.50
 Heat Transfer in Energy Conservation, 1977, Book No. H00106, L-\$18.00, M-\$9.00
 Heat Transfer in Low Reynolds Number Flow—Vol. 5, 1971, Book No. H00071, L-\$8.00, M-\$4.00
 Heat Transfer in Rod Bundles, 1968, Book No. H00003, L-\$8.50, M-\$4.25
 Heat Transfer in Solar Energy Systems, 1977, Book No. H00104, L-\$20.00, M-\$10.00
 International Developments in Heat Transfer, 1963, Book No. H00012, L-\$40.00, M-\$20.00
 Liquid-Metal Heat Transfer and Fluid Dynamics, 1970, Book No. G00077, L-\$23.50, M-\$11.75
 Non-Equilibrium Two-Phase Flows, 1975, Book No. G00094, L-\$10.00, M-\$5.00
 Nuclear Reactor Safety Heat Transfer, 1977, Book No. H00105, L-\$12.00, M-\$6.00
 Progress in Int'l Research on Thermodynamic and Transport Properties, 1962, Book No. G00039, L-\$24.00, M-\$12.00
 Recent Developments in Thermophysical Properties Research—Vol. 3, 1971, Book No. H00069, L-\$3.50, M-\$1.75
 Sixth Symposium on Thermophysical Properties, 1973, Book No. G00046, L-\$24.50, M-\$12.25
 Spent Nuclear Fuel Heat Transfer—Vol. 2, 1971, Book No. H00068, L-\$6.00, M-\$3.00
 Survey of Nucleonic Heat Transfer—Vol. 1, 1971, Book No. H00067, L-\$5.00, M-\$2.50
 Symposium on the Thermal and Hydraulic Aspects of Nuclear Reactor Safety Volume 1—Light Water Reactors, 1977, Book No. G00127, L-\$25.00, M-\$12.00
 Volume 2—Liquid Metal Fast Breeder Reactors, 1977, Book No. G00128, L-\$25.00, M-\$12.00
 Thermal Problems in Biotechnology, 1968, Book No. G00051, L-\$7.50, M-\$3.75
 Transport Phenomena in Atmospheric and Ecological Systems, 1967, Book No. G00061, L-\$3.50, M-\$1.75
 Two-Phase Flow & Heat Transfer in Rod Bundles, 1969, Book No. H00027, L-\$11.00, M-\$5.50
 Two Phase Flow Instrumentation, 1969, Book No. H00016, L-\$9.50, M-\$4.75

Lubrication

Assessment of Lubricant Technology, 1972, Book No. G00001, L-\$20.00, M-\$10.00
 Bearing and Seal Design in Nuclear Power Machinery, 1967, Book No. G00056, L-\$22.00, M-\$11.00
 Boundary Lubrication—An Appraisal of World Literature, 1969, Book No. G00005, L-\$33.50, M-\$16.75
 Computer-Aided Design of Bearings and Seals, 1976, Book No. G00108, L-\$10.00, M-\$5.00
 Gas Lubrication (by V. N. Constantinescu), Translation from Rumanian, 1969, Book No. G00015, L-\$19.50, M-\$9.75
 Loss Prevention of Rotating Machinery, 1972, Book No. G00017, L-\$7.50, M-\$3.75
 PTFE Seals in Reciprocating Compressors—An ASME Design Manual, 1975, Book No. 100082, L-\$15.00, M-\$7.50

Management

Effective Management of Engineering Resources, 1975, Book No. H00095, L-\$6.00, M-\$3.00
 Engineering Computer Software: Verification, Qualification, Certification, 1971, Book No. G00042, L-\$12.50, M-\$6.25
 Engineer's Responsibility to Society, 1969, Book No. 100009, L-\$4.00, M-\$2.00
 Fifty Years Progress in Management 1910-1960, Book No. 100011, L-\$14.00, M-\$7.00
 Frank Gilbreth Centennial, 1969, Book No. 100043, L-\$6.00, M-\$3.00
 Gantt on Management, 1962, Book No. G00040, L-\$9.00, M-\$6.00
 Impact of Competitive Technology on Engineering Management, 1973, Book No. H00051, L-\$5.00, M-\$2.50
 International Impact on Engineering Managers, 1965, Book No. 100064, L-\$6.00, M-\$3.00
 International Patterns of Engineering Management—A Constructive Analysis, 1974, Book No. H00055, L-\$6.00, M-\$3.00
 Managing Engineering Manpower, 1967, Book No. G00057, L-\$5.00, M-\$2.50
 Small Plant Management, 1960, Book No. H00028, L-\$14.00, M-\$11.20
 Unwritten Laws of Engineering, 1944, Book No. 100006, L-\$1.00, M-\$0.50

Materials

ASME Handbook—Engineering Tables, 1956, Book No. G00021, L-\$22.50, M-\$18.00
 ASME Handbook: Metals Engineering—Design, 1965, Book No. H00001, L-\$28.75, M-\$23.00
 ASME Handbook: Metals Engineering—Processes, 1958, Book No. 100023, L-\$22.50, M-\$18.00
 ASME Handbook: Metals Engineering—Properties, 1954, Book No. H00002, L-\$22.50, M-\$18.00
 1976 ASME-MPC Symposium on Creep-Fatigue Interaction, Series MPC-3, 1976, Book No. G00112, L-\$45.00, M-\$22.50
 Behavior of Superheater Alloys in High Temperature, High Pressure Steam, 1968, Book No. H00014, L-\$7.00, M-\$3.50
 Chrome-Moly Steel in 1976, Series MPC-4, 1976, Book No. G00113, L-\$16.00, M-\$8.00
 Elevated Temperature Properties in Austenitic Stainless Steels, 1974, Book No. G00058, L-\$15.00, M-\$7.50
 Effects of Melting and Processing Variables on Mechanical Properties of Steels, Series MPC-6, 1977, Book No. G00126, L-\$35.00, M-\$17.50
 Fracture Toughness of Heavy-Wall Welded Tankage Steel, Series MPC-5, 1977, Book No. G00125, L-\$15.00, M-\$7.50
 Generation of Isochronous Stress - Strain Curves, 1972, Book No. 100049, L-\$8.00, M-\$4.00
 Graphite Fiber Composites, 1967, Book No. G00060, L-\$3.50, M-\$1.75
 Heat-Treated Steels for Elevated Temperature Service, 1966, Book No. H00056, L-\$9.50, M-\$4.75
 Analysis of Data from Symposium on Heat-Treated Steels for Elevated Temperature Service, 1967, Book No. G00045, L-\$3.50, M-\$1.75
 Int'l Research in Production Engineering, 1963, Book No. G00024, L-\$28.00, M-\$14.00
 Manual on Cutting of Metals, 1952, Book No. B00016, L-\$12.00, M-\$6.00
 Materials Technology—An Interamerican Approach, 1968, Book No. H00034, L-\$27.00, M-\$13.50
 Materials Technology—Part I, An Interamerican Approach for the Seventies, 1970, Book No. 100075, L-\$30.00, M-\$15.00
 Materials Education—Part II, An Interamerican Approach for the Seventies, 1970, Book No. 100076, L-\$15.00, M-\$7.50
 Metal Properties for the Petroleum and Chemical Industries, Series MPC-2, 1976, Book No. G00103, L-\$30.00, M-\$15.00
 Properties of Weldments at Elevated Temperatures, 1968, Book No. H00018, L-\$8.00, M-\$4.00
 Reports of Current Work on Behavior of Materials at Elevated Temperatures, 1974, Book No. G00087, L-\$18.00, M-\$9.00
 Structural Materials for Service at Elevated Temperatures in Nuclear Power Generation, Series MPC-1, 1975, Book No. G00099, L-\$50.00, M-\$25.00
 Structures and Materials, 1969, Book No. H00023, L-\$22.00, M-\$11.00
 Theory of Special Casting Methods, Translation from Russian, 1962, Book No. 100040, L-\$9.00, M-\$4.50
 2-1/4 Chrome 1 Molybdenum Steel in Pressure Vessels and Piping, 1971, Book No. G00011, L-\$12.50, M-\$6.25
 2-1/4 Chrome 1 Molybdenum Steel in Pressure Vessels and Piping—A Current Evaluation, 1972, Book No. G00025, L-\$9.50, M-\$4.75
 Wear of Materials—1977, Book No. H00100, L-\$50.00, M-\$50.00

Metric

SI-1 ASME Orientation and Guide for Use of SI (Metric) Units—Seventh Edition, 1976, Book No. E00058, L-\$2.00, M-\$1.00

- SI-2 ASME Text Booklet, SI Units in Strength of Materials—Second Edition, 1976, Book No. E00082, L-\$3.00, M-\$1.50
- SI-3 ASME Text Booklet, SI Units in Dynamics, 1976, Book No. E00083, L-\$4.00, M-\$2.00
- SI-4 ASME Text Booklet—SI Units in Thermodynamics, 1976, Book No. E00084, L-\$6.50, M-\$3.25
- SI-5 ASME Text Booklet, SI Units in Fluid Mechanics, 1976, Book No. E00085, L-\$5.00, M-\$2.50
- SI-6 ASME Text Booklet, SI Units in Kinematics, 1976, Book No. E00086, L-\$3.00, M-\$1.50
- SI-7 ASME Text Booklet, SI Units in Heat Transfer, 1977, Book No. E00087, L-\$5.00, M-\$2.50
- SI-8 ASME Text Booklet, SI Units in Vibration, 1976, Book No. E00088, L-\$3.00, M-\$1.50
- SI-10 Steam Charts, SI (Metric) and U. S. Customary Units, 1976, Book No. E00090, L-\$25.00, M-\$12.50
- Transactions of Technical Conference on Metric Mechanical Fasteners, 1975, Book No. E00092, L-\$12.00, M-\$9.60

Ocean

- Marine Propulsion Systems, 1976, Book No. G00110, L-\$25.00, M-\$12.50
- Ocean Energy Resources, OED-Vol. 4, 1977, Book No. G00120, L-\$15.00, M-\$7.50
- Ocean Engineering Mechanics, 1975, Book No. G00095, L-\$20.00, M-\$10.00
- Ocean Resources Utilization, 1976, Book No. G00111, L-\$20.00, M-\$10.00

Power

- Advanced Centrifugal Compressors, 1971, Book No. H00038, L-\$16.00, M-\$8.00
- Advances in Energy Conversion Engineering (Papers, Critiques and Summaries), 1967, Book No. G00053, L-\$32.00, M-\$16.00
- ASME Steam Tables—Third Edition (with Mollier Chart), 1977, Book No. G00038, L-\$18.00, M-\$9.00
- Mollier Chart only, Book No. G00041, L-\$4.00, M-\$2.00
- ASME Steam Tables in SI (Metric) Units for Instructional Use, 1977, Book No. H00093, L-\$3.00, M-\$1.50
- 1976 ASME-ANS International Conference on Advanced Nuclear Energy Systems, 1976, Book No. H00099, L-\$55.00, M-\$25.00
- CIMAC—10th International Conference on Combustion Engines: Papers and Discussions, 1973, Book No. H00080, L-\$65.00, M-\$35.00
- Discussions only, 1973, Book No. H00085, L-\$20.00, M-\$10.00
- Coal Fouling and Slagging Parameters, 1974, Book No. H00086, L-\$6.50, M-\$3.25
- Corrosion and Deposits from Combustion Gases, Abstracts and Index, 1970, Book No. H00084, L-\$25.00, M-\$12.50
- Diesel and Gas Engine Power:
- 1970 Proceedings, Book No. H00075, L-\$15.00, M-\$7.50
 - 1969 Proceedings, Book No. H00069, L-\$12.50, M-\$6.25
 - 1968 Proceedings, Book No. H00045, L-\$15.00, M-\$7.50
- Diesel Fuel Oils, 1948, Book No. G00012, L-\$4.00, M-\$2.00
- Engineering Developments in Energy Conversion, 1965, Book No. I00062, L-\$14.00, M-\$7.00
- Fatigue Life Technology, 1977, Book No. H00096, L-\$18.00, M-\$9.00
- Fuels Research in the Western World, 1964, Book No. I00054, L-\$2.00, M-\$1.00
- Gas Turbine Pumps, 1972, Book No. H00076, L-\$12.50, M-\$6.25
- Loss Prevention of Rotating Machinery, 1972, Book No. G00017, L-\$7.50, M-\$3.75
- 1974 Report on Diesel and Gas Engine Power Costs, 1974, Book No. H00049, L-\$5.50, M-\$2.75
- 9th Intersociety Energy Conversion Engineering Conference, 1974, Book No. H00026, L-\$70.00, M-\$30.00
- Theoretical Steam Rate Tables, 1969, Book No. I00003, L-\$15.00, M-\$7.50
- Turbomachinery Developments in Steam and Gas Turbines, 1977, Book No. H00108, L-\$16.00, M-\$8.00

Pressure Vessels

- Advances in Design for Elevated Temperature Environment, 1975, Book No. G00062, L-\$18.50, M-\$9.25
- Composites in Pressure Vessels and Piping, Series PVP-PB-021, 1977, Book No. G00121, L-\$25.00, M-\$12.50
- Computational Fracture Mechanics, 1975, Book No. G00091, L-\$18.50, M-\$9.25
- Design Criteria of Boilers and Pressure Vessels—1977, Book No. G00114, L-\$7.50, M-\$3.75
- Design for Elevated Temperature Environment, 1971, Book No. G00035, L-\$7.50, M-\$3.75
- Dynamic Analysis of Pressure Vessel and Piping Components, Series PVP-PB-022, 1977, Book No. G00122, L-\$16.00, M-\$8.00
- 1976 Elevated Temperature Design Symposium, 1976, Book No. G00104, L-\$6.00, M-\$3.00
- Engineering Computer Software: Verification, Qualification, Certification, 1971, Book No. G00042, L-\$12.50, M-\$6.25
- Failure Data and Failure Analysis: In Power and Processing Industries, Series PVP-PB-023, 1977, Book No. G00123, L-\$16.00, M-\$8.00
- Fluid-Structure Interaction Phenomena in Pressure Vessel and Piping Systems, Series PVP-PB-026, 1977, Book No. G00130, L-\$16.00, M-\$8.00
- Limit Analysis Using Finite Elements, 1976, Book No. G00109, L-\$14.00, M-\$7.00
- Numerical Modeling of Manufacturing Processes, Series PVP-PB-025, 1977, Book No. G00131, L-\$20.00, M-\$10.00
- Pressure Vessel and Piping 1972 Computer Programs Verification, 1972, Book No. I00024, L-\$15.00, M-\$7.50

- First International Conference on Pressure Vessel Technology:
- Design and Analysis—Part I, 1969, Book No. G00062, L-\$37.50, M-\$18.75
 - Materials and Fabrication—Part II, 1969, Book No. G00063, L-\$37.50, M-\$18.75
 - Discussions—Part III, 1970, Book No. G00064, L-\$20.00, M-\$10.00
- Second International Conference on Pressure Vessel Technology:
- Part I—Design and Analysis, 1973, Book No. G00082, L-\$40.00, M-\$20.00
 - Part II—Materials, Fabrication and Inspection, 1973, Book No. G00083, L-\$40.00, M-\$20.00
 - Part III—Discussions, 1974, Book No. G00084, L-\$20.00, M-\$10.00
- Third International Conference on Pressure Vessel Technology:
- Part I—Design and Analysis, 1977, Book No. G00115, L-\$75.00, M-\$37.50
 - Part II—Materials and Fabrication, 1977, Book No. G00116, L-\$75.00, M-\$37.50
 - Part III—Discussions, 1977, Book No. G00117, L-\$50.00, M-\$25.00
- Pressure Vessels and Piping: Analysis and Computers, 1974, Book No. G00031, L-\$20.00, M-\$10.00
- Pressure Vessels and Piping/Computer Program Evaluation and Qualification, Series PVP-PV-024, 1977, Book No. G00124, L-\$16.00, M-\$8.00
- Pressure Vessels and Piping: Design and Analysis—A Decade of Progress:
- Volume One—Analysis, 1972, Book No. G00019, L-\$35.00, M-\$17.50
 - Volume Two—Components and Structural Dynamics, 1972, Book No. G00020, L-\$35.00, M-\$17.50
 - Volume Three—Materials and Fabrication, 1976, Book No. G00100, L-\$50.00, M-\$25.00
 - Volume Four—Quality Assurance—Applications—Components, 1976, Book No. G00101, L-\$50.00, M-\$25.00
- Pressure Vessels and Piping—Verification and Qualification of Inelastic Analysis Computer Programs, 1975, Book No. G00088, L-\$12.50, M-\$6.25
- Reliability Engineering in Pressure Vessels and Piping, 1975, Book No. G00089, L-\$11.00, M-\$5.50
- Seismic Analysis of Pressure Vessel and Piping Components, 1971, Book No. I00030, L-\$15.00, M-\$7.50
- Software User: Education and Qualification, 1972, Book No. I00016, L-\$5.50, M-\$2.75
- Thermal Structural Analysis Programs: A Survey and Evaluation, 1972, Book No. H00019, L-\$8.50, M-\$4.25
- Three-Dimensional Continuum Computer Programs for Structural Analysis, 1972, Book No. I00021, L-\$6.00, M-\$3.00

Research

- Research Needs Report: Design, Materials, and Manufacturing Research, 1976, Book No. H00089, L-\$5.00, M-\$2.50
- Research Needs Report: Energy Conversion Research, 1976, Book No. H00090, L-\$10.00, M-\$5.00

Solid Waste

- Combustion Fundamentals for Waste Incineration, 1974, Book No. H00087, L-\$30.00, M-\$15.00
- Disposal of Industrial Wastes by Combustion, Present State-of-the-Art—Volume III, 1977, Book No. H00092, L-\$15.00, M-\$7.50
- Incinerator and Solid Waste Technology, 1962–1975, Book No. I00092, L-\$60.00, M-\$30.00
- 1970 National Incinerator Conference (With Discussions), 1970, Book No. I00070, L-\$25.00, M-\$12.50
- Discussions only, Book No. I00060, L-\$6.50, M-\$3.25
- 1972 National Incinerator Conference (With Discussions), 1972, Book No. I00081, L-\$28.00, M-\$14.00
- Discussions only, Book No. I00079, L-\$5.00, M-\$2.50
- 1974 National Incinerator Conference—Resource Recovery Thru Incineration (With Discussions), 1974, Book No. I00083, L-\$35.00, M-\$17.50
- 1976 National Waste Processing Conference Proceedings—From Waste to Resource Through Processing (With Supplement), 1976, Book No. I00096, L-\$90.00, M-\$45.00
- Present Status and Research Needs in Energy Recovery from Wastes—Proceedings of the 1976 Conference, 1977, Book No. H00091, L-\$35.00, M-\$17.50
- Survey of Disposal of Industrial Wastes by Combustion: Volume II, 1972, Book No. H00082, L-\$10.00, M-\$5.00

Transportation

- Anthology of Rail Vehicle Dynamics—Freight Car Impact—Vol. 1, 1971, Book No. H00064, L-\$20.00, M-\$10.00
- Anthology of Rail Vehicle Dynamics—Effects of Train Action and Rail Car Vibration—Vol. II, 1972, Book No. H00065, L-\$25.00, M-\$12.50
- Anthology of Rail Vehicle Dynamics—Axles, Wheels and Rail-Wheel Interaction—Vol. III, 1973, Book No. H00066, L-\$30.00, M-\$15.00
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